Lesson Plan – Exploring Energy

Students will explore and learn about different forms and sources of energy: mechanical, chemical, electrical, sound, light and heat by engaging in hands-on activities that help them identify energy types and enhance their understanding of the concept of energy. and distinguish differences between renewable and nonrenewable energy sources.

**Main Academic Demand**

Present information appropriate to task, purpose and audience, with coherent reasoning and evidence.

**Key Idea:** To investigate energy in order to compare and contrast the benefits and drawbacks of renewable and non-renewable sources of energy and how they are stored, transferred, and used up.

**Essential Questions:** What is energy? What types of energy can we see, hear, or feel? How do we use energy every day? Why should we care about energy?

**Objectives:** Students will be able to define and identify energy distinguish between the various types of energy sources that exist as renewable or non-renewable forms of energy.

**New York State P-12 Science Learning Standards:**

# 4. Energy

* **4-ESS3-1.** Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. [Clarification Statement: Examples of renewable energy resources could include wind, water behind dams, and sunlight; nonrenewable energy resources are fossil fuels and fissile materials.]

**Materials:** doc cam, interactive handouts, graphic organizers, Smartboard, sort cards, images for written task

**Skills to be introduced:** reasoning and constructing oral or written statements to support student thinking

**Vocabulary:** energy, biomass, chemical, electrical, kinetic, light, mechanical, non-renewable, nuclear, potential, renewable, sound, thermal

**Background Information:** Energy takes many forms. Thermal energy (or heat) boils water, keeps us warm and drives engines. Chemical energy fuels automobiles and… (See handout 1)

**Lesson Overview:**

* Students will read background information and preview vocabulary.
* Students will watch video: <https://www.brainpop.com/science/energy/formsofenergy>
* Students will engage in brief class discussion relating to energy sources.
* Students will group and engage in the **Explore Energy Picture Sort** activity and take **Energy Vocabulary Quiz.**
* Students will use reasoning to make claims and produce statements that support their thinking.

**Tasks and Activities:** (See handouts)

**Assessments:**

* Students will engage in tasks where they are presented with images that need to be correctly identified by energy type.
* Students will compare and contrast the differences between renewable and non-renewable energy sources during partner and class discussions.
* Students will reason and produce written statements that support their thinking regarding their choices for identifying images as a particular energy source.

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## Grading Evaluation Rubric

Student Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lesson: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- | --- |
| **Activity/Task:** | **Points available:** | **Points earned:** |
| Explore Energy Sort Group | 20 |  |
| Vocabulary Quiz | 30 |  |
| Reasoning statements | **----** | **----** |
| * Claim clearly stated | 25 |  |
| * Supporting evidence provided | 15 |  |
| * Grammar, spelling, and punctuation. | 10 |  |
| Total Points | 100 |  |
| Comments: | | |